

CLAIMS

What is claimed is:

1. An isolated polynucleotide encoding a polypeptide wherein the encoded polypeptide comprises a sequence of amino acid residues that is at least 95% identical in amino acid sequence to residues 18-252 of SEQ ID NO:2, wherein said sequence comprises:

Gly-Xaa-Xaa and Gly-Xaa-Pro collagen repeats forming a collagen-like domain, wherein Xaa is any amino acid residue; and

a carboxyl-terminal C1q domain.

2. The isolated polynucleotide of claim 1 wherein the polypeptide is at least 95% identical in amino acid sequence to residues 1-252 of SEQ ID NO:2.

3. The isolated polynucleotide of claim 1 wherein the collagen-like domain consists of 14 Gly-Xaa-Xaa collagen repeats and 1 Gly-Xaa-Pro collagen repeat.

4. The isolated polynucleotide of claim 1 wherein the encoded polypeptide comprises:

an amino terminal region;

14 Gly-Xaa-Xaa collagen repeats and 1 Gly-Xaa-Pro collagen repeat forming a collagen-like domain, wherein Xaa is any amino acid residue; and

a carboxyl-terminal C1q domain comprising 10 beta strands corresponding to amino acid residues 119-123, 141-143, 149-152, 156-158, 162-173, 178-184, 189-196, 200-211, 216-221 and 240-244 of SEQ ID NO:2.

5. The isolated polynucleotide of claim 1 wherein any differences between the polypeptide and SEQ ID NO:2 are due to conservative amino acid substitutions.

6. The isolated polynucleotide of claim 1 wherein the polypeptide specifically binds with an antibody that specifically binds with a polypeptide of SEQ ID NO:2.

7. The isolated polynucleotide of claim 1 wherein the collagen-like domain comprises amino acid residues 70-111 of SEQ ID NO:2.

8. The isolated polynucleotide of claim 1 wherein the carboxyl-terminal C1q domain comprises amino acid residues 112-252 of SEQ ID NO:2.

9. The isolated polynucleotide of claim 1 wherein the polypeptide is covalently linked at the amino or carboxyl terminus to a moiety selected from the group consisting of affinity tags, toxins, radionucleotides, enzymes and fluorophores.

10. An isolated polynucleotide comprising a sequence selected from the group consisting of,

- a) nucleotide 1 to nucleotide 756 of SEQ ID NO:1;
- b) nucleotide 1 to nucleotide 759 of SEQ ID NO:1;
- c) nucleotide 52 to nucleotide 756 of SEQ ID NO:1;
- d) nucleotide 52 to nucleotide 759 of SEQ ID NO:1;

and

e) nucleotide sequences complementary to a), b), c), or d).

11. An isolated polynucleotide consisting of a sequence selected from the group consisting of:

- a) nucleotide 1 to nucleotide 756 of SEQ ID NO:1;
- b) nucleotide 1 to nucleotide 759 of SEQ ID NO:1;
- c) nucleotide 52 to nucleotide 756 of SEQ ID NO:1;
- d) nucleotide 52 to nucleotide 759 of SEQ ID NO:1;

and

e) nucleotide sequences complementary to a), b), c), or d).

12. An isolated polynucleotide encoding a fusion protein comprising a first portion and a second portion joined by a peptide bond, wherein the first portion comprises amino acid residues 18-252 of SEQ ID NO:2; and the second portion comprises another polypeptide.

13. An isolated polynucleotide consisting of nucleotide 1 to nucleotide 756 of SEQ ID NO:12.

14. An expression vector comprising the following operably linked elements:

a transcription promoter;

a DNA segment encoding a polypeptide wherein the encoded polypeptide comprises a sequence of amino acid residues that is at least 95% identical in amino acid sequence to residues 18-252 of SEQ ID NO:2, wherein the sequence comprises Gly-Xaa-Xaa and Gly-Xaa-Pro collagen repeats forming a collagen-like domain, wherein Xaa is any amino acid residue and a carboxyl-terminal C1q domain; and

a transcription terminator.

15. The expression vector of claim 14 wherein the DNA segment encodes a polypeptide that is at least 95% identical in amino acid sequence to residues 1-252 of SEQ ID NO:2.

16. The expression vector of claim 14 wherein the collagen-like domain consists of 14 Gly-Xaa-Xaa collagen repeats and 1 Gly-Xaa-Pro collagen repeat.

17. The expression vector of claim 14 wherein the DNA segment encoded polypeptide comprises:

an amino terminal region;

14 Gly-Xaa-Xaa collagen repeats and 1 Gly-Xaa-Pro collagen repeat forming a collagen-like domain, wherein Xaa is any amino acid residue; and

a carboxyl-terminal C1q domain comprising 10 beta strands corresponding to amino acid residues 119-123, 141-143, 149-152, 156-158, 162-173, 178-184, 189-196, 200-211, 216-221 and 240-244 of SEQ ID NO:2.

18. The expression vector of claim 14 wherein the collagen-like domain comprises amino acid residues 70-111 of SEQ ID NO:2.

19. The expression vector of claim 14 wherein any differences between the polypeptide and SEQ ID NO:2 are due to conservative amino acid substitutions.

20. The expression vector of claim 14 wherein the polypeptide specifically binds with an antibody that specifically binds with a polypeptide of SEQ ID NO:2.

21. The expression vector of claim 14 wherein the DNA segment further encodes a secretory signal sequence operably linked to the polypeptide.

22. The expression vector of claim 21 wherein the secretory signal sequence comprises residues 1-17 of SEQ ID NO:2.

23. A cultured cell into which has been introduced an expression vector of claim 14, wherein the cell expresses the polypeptide encoded by the DNA segment.

24. The cultured cell of claim 23, which further comprises one or more expression vectors comprising DNA segments encoding polypeptides having collagen-like domains.

25. An isolated polynucleotide encoding a polypeptide wherein the encoded polypeptide comprises SEQ ID NO:2.

26. An isolated polynucleotide encoding a polypeptide wherein the encoded polypeptide comprises amino acid residues 18-252 of SEQ ID NO:2.

27. An isolated polynucleotide encoding a polypeptide wherein the encoded polypeptide consists of amino acid residues 18-252 of SEQ ID NO:2.